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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application Of: **RICHARD J. RICHARDSON**

Serial Number: 08/919,947

Filed: August 29, 1997

Title: LIGHTING CIRCUIT, LIGHTING SYSTEM METHOD AND APPARATUS, SOCKET ASSEMBLY, LAMP INSULATOR ASSEMBLY AND COMPONENTS THEREOF

Examiner: **Ward, J.**

Group Art Unit: 2875

Commissioner For Patents
 Washington, D.C. 20231

REQUEST FOR RECONSIDERATION OF MARCH 8, 2002 FINAL REJECTION

Sir:

In response to the Final Office Action dated March 8, 2002, and identified as paper No. 22, please reconsider the Final Rejection in view of the following remarks.

REMARKS

In response to the March 8, 2002 Final Office Action, Applicant respectfully requests reconsideration of the above-identified application in view of the following remarks. If any issues remain after considering the following material and the earlier-filed arguments, including the Request For Reconsideration filed May 21, 2002, Applicant respectfully requests a telephone interview to discuss those remaining issues.

Applicant requests reconsideration of the rejections in view of the arguments presented previously in Applicant's responses. Particular note should be made of those arguments establishing that elements of the claims as well as the combinations set forth in the claims are not found in the prior art, taken singly or in combination. Simply by way of example, the rejections of claims 81-99 suffer the same deficiencies as the rejections withdrawn by the Examiner. Additionally, none of the prior art recognizes any problems in Electronic ballast circuits arising from surface areas of contact in circuit functions. Furthermore, the Examiner provides no support for the contention that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide [an improved surface area of contact such as] a surface area of at least 0.008 square inch" Applicant also reemphasizes the arguments establishing that there is no suggestion of combining the references as argued by the Examiner.

In addition to the arguments made previously, the following discussion shows that the references relied upon by the Examiner would not be combined, and there is no suggestion to do so. It also shows that purported experts in the field of commercial cabinets and refrigerated display cases (in which the Yoon reference can be used) believe that issues discussed in Applicant's application are more appropriately addressed through ballast design changes rather than circuit connection designs, thereby leading away from the solutions taught by the present application. Therefore, the rejections asserted by the Examiner are not supported by the evidence and are not supported by purported experts in the field of refrigerated display cases.

Attached hereto as Exhibit 1 is a true and correct copy of a "Report of the Meeting of the Ad Hoc Committee of UL for Commercial Refrigerators and Freezers; Request for Comments on

Proposed Requirements for the Sixth Edition of the Standard for Wired Cabinets, UL 65; for the Eighth Edition of the Standard for Commercial Refrigerators and Freezers, UL 471; and for the Ninth Edition of the Standard for Fluorescent-Lamp Ballasts, UL 935; PROPOSED EFFECTIVE DATES", dated June 20, 1997 (the "Report"). The following will discuss elements of that Report. Those elements establish that the rejections asserted by the Examiner are not supported by the evidence, and that there is no suggestion to combine the references the Examiner relies on.

By way of background, the Report states that unintended arcing was occurring in fluorescent lamp holders used in commercial display refrigeration equipment. [Page 3:1. All citations are to the Report attached hereto, by page number, with the following number referring to text marked with the same number hand written in the right margin of the report.] This arcing was stated to occur as a result of the design, environment or usage of a ballast lamp circuit [page 3:2], such as where connections separate at lampholders or other connectors, and when certain ballast designs such as high frequency Electronic ballasts are used with certain lamps such as T8 lamps, and with lamp holders such as bi-pin lamp holders. [Page 3:2.] The resulting arc could ignite surrounding materials and even destroy cabinets. [Page 3:2.] As will be seen below, the solution supported by this Report is to use only certain types of ballasts, without addressing lampholders, or addressing lampholders that separate from the lamps.

The Report also states that "the environment of a refrigerated case may be contributory and is considerably different than that which a lighting fixture experiences in a non-refrigerated environment. A refrigerated environment includes sources of vibration caused by forces on the display case from the slamming of doors, loading of commodities, and impacts from shopping carts. This environment also includes cool, damp air that may accelerate corrosion of electrical contacts and require higher lamp ignition energies. This environment may cause a fluorescent lamp to loosen in the lamp holders or ballast connectors and connections to loosen. Such deterioration can cause an intermittent connection or a circuit gap in the ballast circuit. Except for the colder temperatures, wired cases may have a similar environment." [Page 3:3. Emphasis added.] This Report shows that refrigerated display cases are subject to conditions not found in

other display cases or in other lighting applications, and that refrigerated display cases are treated differently than other display cases in this context.

Other statements in the Report show that refrigerated display cases are treated differently than other display cases in this context. The Report states that the trend in ballast usage in commercial refrigerated display cases is toward Electronic ballasts, and ballasts with higher frequencies and higher output voltages required to start a cold lamp, "because as the fluorescent lamp temperature gets colder, a higher starting voltage is required." [Page 3:4.] The Report also suggests that electronic ballast design contributes to the possibility of arcing in refrigerated display cases. Some Electronic ballasts maintain their starting voltage even when circuit components have been disconnected, and the higher ballast output frequencies increase the tendency to sustain an arc, such as in a circuit gap such as those that occur in these refrigerated display cases. [Page A2:5 & page 4:6.] In another example, the Report notes that the environment of the ballast circuits contribute to the possibility of arcing, and a large number of those environmental effects are not present in display cases other than refrigerated display cases. Those factors include colder temperatures, cool and damp air, higher ignition energies for cold lamps, and the like. [Page 3:3 & page A2:7.]

In view of the foregoing, the evidence shows that refrigerated display cases have conditions not found in other cases, and that there is no suggestion to combine the references relied upon by the Examiner. In fact, the Report shows that rather than looking to display cases for a solution to the arcing issue, the UL Report focuses on internal ballast circuit designs to "limit" the arcing [Page 4:8].

The evidence in the Report also shows that purported experts in the field find that the solution to the arcing is not to rely on the combinations claimed in the present application but instead to change the ballast designs. [The word "expert" is used in the Report at page 2:9.] The Report proposes a new UL requirement for ballasts that are to be used in commercial cabinets. That requirement is to pass an arcing test. [See Report Appendix A for the test procedure

adopted by the UL]. However, as will be shown below, this would not necessarily limit the types of arcing observed in refrigerated display cases leading to case damage.


The Report notes that usage contributes to the possibility of arcing. Component issues arising from usage include mis-installed lamps, corrosion of live parts, movement of lamps or lamp holders, reduction in spring tension of live part connections or terminals, handling of the lamps and the case environment [page 3:10]. These are issues that occur irrespective of whether the ballast design meets the newly established UL ballast requirements. For example, if a non-UL approved ballast were used in a refrigerated display case having corroded lampholders, arcing may still occur. Therefore, there still exists a need satisfied by the present inventions.

While the new UL requirement reduces the possibility of arcing [page 4:8], it does not address issues of a circuit gap that may arise in refrigerated display cases, or corroded electrical connections created by the environment of a refrigerated display case. Therefore, the claims of the present application are not taught or suggested by any of the prior art of record, taken singly or in combination, and purported experts involved in commercial refrigeration products considered the appropriate solution to be using particular types of ballast circuits in such commercial refrigeration products. (Those attending the meeting referenced in the Report are identified in Appendix D.) While it should be noted that several of the ballast requirements include exceptions, for example those appliances using recessed bi-pin lamp holders [Appendix B, Standard 19.15; and Appendix C, Standard 8.7], those exceptions are unrelated to the surface area of contact of the lamp holders or the possibility of a circuit gap.

For the foregoing reasons, and the reasons set forth in Applicant's earlier responses, there is no suggestion to combine the references relied upon by the Examiner, there is no teaching or suggestion of the claimed combinations, and any permissible combinations of references of record would not lead to the claimed combinations. Reconsideration of the claims in the present application and early notice of allowance thereof is respectfully requested.

Respectfully submitted,

Dated: December 7, 2002


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